

Attachment A to Resolution No. R4-2005-XXXX

Proposed Amendment to the Water Quality Control Plan – Los Angeles Region  
to Incorporate a

Total Maximum Daily Loads (TMDLs) for  
Organochlorine (OC) Pesticides,  
Polychlorinated Biphenyls (PCBs) and Siltation ~~in~~TMDL  
~~In~~ Calleguas Creek, Its Tributaries, and Mugu Lagoon

Proposed for adoption by the California Regional Water Quality Control Board, Los Angeles Region on ~~[Insert Date]~~ July 7, 2005.

Amendments

Table of Contents

Add:

Chapter 7. Total Maximum Daily Loads (TMDLs)

~~7- 17~~ Calleguas Creek Organochlorine Pesticides, Polychlorinated  
Biphenyls, and Siltation Watershed OC Pesticides and PCBs TMDL

List of Figures, Tables, and Inserts

Add:

Chapter 7. Total Maximum Daily Loads (TMDLs)

Tables

- ~~7-17~~ Calleguas 17 Calleguas Creek Organochlorine Pesticides,  
Polychlorinated Biphenyls, and Siltation Watershed OC  
Pesticides and PCBs TMDL
- ~~7-17.1~~ Calleguas 17.1 Calleguas Creek Organochlorine Pesticides,  
Polychlorinated Biphenyls, and Siltation Watershed OC  
Pesticides and PCBs TMDL:  
Elements
- ~~7-17.2~~ Calleguas 17.2 Calleguas Creek Organochlorine Pesticides,  
Polychlorinated Biphenyls, and Siltation Watershed OC  
Pesticides and PCBs TMDL:  
Implementation Schedule

Chapter 7. Total Maximum Daily Loads (TMDLs)

Calleguas Creek Organochlorine Pesticides, Polychlorinated  
Biphenyls, and Siltation Watershed OC Pesticides and PCBs TMDL

Add:

This TMDL was adopted by t:

~~[Insert date]~~ June 23, 2005

T  
E  
N  
T  
A  
T  
I  
V  
E

The Regional Water Quality Control Board on [Insert date].

This TMDL was approved by:

The State Water Resources Control Board on [Insert date].

The Office of Administrative Law on [Insert date].

The U.S. Environmental Protection Agency on [Insert date].

The following table includes the elements of the TMDL:

**Table 7-17.1. Calleguas Creek Watershed OC Pesticides ~~and~~, PCBs, and Siltation TMDL: Elements**

TMDL Element	Calleguas Creek Watershed OC Pesticide, PCBs, and Siltation TMDL														
Problem Statement	Eleven of fourteen reaches in the Calleguas Creek Watershed (CCW) were identified on the 2002 303(d) list of water-quality limited segments as impaired due to elevated levels of organochlorine (OC) pesticides and/or polychlorinated biphenyls (PCBs) in water, sediment, and/or fish tissue. Additionally, Mugu Lagoon was listed as impaired for sedimentation/siltation. OC pesticides and PCBs can bioaccumulate in fish tissue and cause toxicity to aquatic life in estuarine and inland waters. Siltation may transport OC Pesticides and PCBs to surface waters and impair aquatic life and wildlife habitats.														
Numeric Targets	<p>The following tables provide the numeric targets for water, fish tissue, and sediment for this TMDL. Water column targets were derived from the California Toxic Rule (CTR) water quality criteria for protection of aquatic life. Chronic criteria (Criteria Continuous Concentration, or CCC) were applied unless otherwise noted in the table below.</p> <p>The following tables provide the numeric targets for water, fish tissue, and sediment for this TMDL. Water column targets were derived from the California Toxics Rule (CTR) water quality criteria for protection of aquatic life. Chronic criteria (Criteria Continuous Concentration, or CCC) were applied unless otherwise noted in the table below:</p> <table><tr><th rowspan="2">Constituent</th><th colspan="2">Water Quality Targets (ng/L)<sup>1</sup></th></tr><tr><th>Freshwater</th><th>Marine<sup>2</sup></th></tr><tr><td>Aldrin</td><td>300.03.0<sup>1</sup></td><td>130.0.3<sup>1</sup></td></tr><tr><td>Chlordane</td><td>4.30.0043</td><td>0.0040 4.0</td></tr><tr><td>Dacthal</td><td>3,500,000.0<sup>2</sup></td><td>— (a)<sup>1</sup>NA<sup>2</sup></td></tr></table>	Constituent	Water Quality Targets (ng/L) <sup>1</sup>		Freshwater	Marine <sup>2</sup>	Aldrin	300.03.0 <sup>1</sup>	130.0.3 <sup>1</sup>	Chlordane	4.30.0043	0.0040 4.0	Dacthal	3,500,000.0 <sup>2</sup>	— (a) <sup>1</sup> NA <sup>2</sup>
Constituent	Water Quality Targets (ng/L) <sup>1</sup>														
	Freshwater	Marine <sup>2</sup>													
Aldrin	300.03.0 <sup>1</sup>	130.0.3 <sup>1</sup>													
Chlordane	4.30.0043	0.0040 4.0													
Dacthal	3,500,000.0 <sup>2</sup>	— (a) <sup>1</sup> NA <sup>2</sup>													

<sup>1</sup> ng/L: nanogram per liter

<sup>2</sup> Marine numeric targets applied to Mugu Lagoon

TMDL Element	Calleguas Creek <u>Watershed</u> OC Pesticide, PCBs, and Siltation TMDL
	<del>4,4'-DDD<sup>2</sup></del> <del>-(a)<sup>3</sup> NA</del> <del>(a)<sup>3</sup> NA<sup>3</sup></del> <del>4,4'-DDE<sup>3</sup></del> <del>(a)<sup>3</sup> NA</del> <del>(a)<sup>3</sup> NA</del> <del>4,4'-DDT<sup>4</sup></del> <del>- 1.00.001</del> <del>0.001 1.0</del> <del>Dieldrin</del> <del>0.05656.0-</del> <del>1.90.0019</del> <del>Endosulfan I</del> <del>0.056 56.0-</del> <del>0.0087 8.7</del> <del>Endosulfan II</del> <del>0.05656.0-</del> <del>0.0087 8.7</del> <del>Endrin</del> <del>0.0 36.0</del> <del>0.0023 2.3</del> <del>HCH (alpha-BHC<sup>5</sup>)</del> <del>(a)<sup>3</sup> NA</del> <del>NA(a)<sup>3</sup></del> <del>HCH (beta-BHC)</del> <del>NA(a)<sup>3</sup></del> <del>(a)<sup>3</sup> NA</del> <del>HCH (delta-BHC)</del> <del>(a)<sup>3</sup> NA</del> <del>(a)<sup>3</sup> NA</del> <del>HCH (gamma BHC)</del> <del>950.0 0.95<sup>+</sup>-</del> <del>0.16160.0<sup>+</sup></del> <del>Heptachlor</del> <del>3.8 0.0038</del> <del>3.60.0036</del> <del>Heptachlor Epoxide</del> <del>3.80.0038</del> <del>0.003.6</del> <del>PCBs</del> <del>140.00.014<sup>36</sup></del> <del>30.00.030<sup>37</sup></del> <del>Toxaphene</del> <del>0.20.00020</del> <del>0.00020 0.2</del>  <u>Fish tissue targets are derived from CTR human health criteria for consumption of organisms.</u> <sup>1</sup> <u>No chronic criteria exist; acute criteria are used.</u> <sup>2</sup> <u>No chronic or acute criteria exist; drinking water standard of 3500 ug/L adopted by Florida and Arizona is applied for freshwater.</u> <sup>3</sup> <u>PCBs in water are measured as sum of seven Aroclors.</u> <sup>NA</sup> <u>No applicable standards exist.</u>

<sup>1</sup> Numeric targets have not been established for these constituents

<sup>2</sup> DDD: Dichlorodiphenyldichloroethane

<sup>3</sup> DDE: Dichlorodiphenyldichloroethylene

<sup>4</sup> DDT: Dichlorodiphenyltrichloroethane

<sup>5</sup> BHC: Hexachlorocyclohexane

<sup>6</sup> Applies to sum of all congener or isomer or homolog or Aroclor analyses

<sup>7</sup> Numeric targets have not been established for these constituents

<sup>8</sup> Applies to sum of all congener or isomer or homolog or Aroclor analyses

<sup>9</sup> TEL = Threshold Effects Level

<sup>10</sup> Marine numeric targets applied to Mugu Lagoon

<sup>11</sup> ERL = Effects Range-Low.

<sup>4</sup> ~~NOAA Screening Quick Reference Tables are intended for preliminary screening purposes only; they do not represent official NOAA policy and do not constitute criteria or clean-up levels. Further guidance on the recommended application of various screening guidelines is provided in the supporting source documentation. Regional Board staff find they represent the best science available for sediment targets to protect beneficial uses. The State Water Resources Control Board may adopt sediment standards during the life of this TMDL, at which time the Regional Board may revise the TMDL to include these standards.~~

TMDL Element	Calleguas Creek Watershed OC Pesticide, PCBs, and Siltation TMDL																																									
	<p><u>Fish tissue targets are derived from CTR human health criteria for consumption of organisms. The calculational methodology is described in the TMDL Technical Report.</u></p> <p style="text-align: center;"><b>Fish Tissue Targets (ng/Kg)</b></p> <table><tr><th>Constituent</th><th>Fish Tissue Targets (µg/Kg)</th></tr><tr><td>Aldrin</td><td>50.00.050</td></tr><tr><td>Chlordane</td><td>830.0.3</td></tr><tr><td>Dacthal</td><td>(a)<sup>7</sup> NA</td></tr><tr><td>4,4'-DDD</td><td>-45,000.0</td></tr><tr><td>4,4'-DDE</td><td>-32,000.0</td></tr><tr><td>4,4'-DDT</td><td>-32,000.0</td></tr><tr><td>Dieldrin</td><td>650.00.65</td></tr><tr><td>Endosulfan I</td><td>65,000,000.0</td></tr><tr><td>Endosulfan II</td><td>65,000,000.0</td></tr><tr><td>Endrin</td><td>3,200,000.0</td></tr><tr><td>HCH (alpha-BHC)</td><td>1,700.00</td></tr><tr><td>HCH (beta-BHC)</td><td>6,000.0</td></tr><tr><td>HCH (delta-BHC)</td><td>(a)<sup>1</sup> NA</td></tr><tr><td>HCH (gamma BHC)</td><td>8,200.</td></tr><tr><td>Heptachlor</td><td>2,400.0</td></tr><tr><td>Heptachlor Epoxide</td><td>1,200.0</td></tr><tr><td>PCBs</td><td>5,300.03<sup>8+</sup></td></tr><tr><td>Toxaphene</td><td>9,800.0</td></tr></table> <p><u>Sediment targets were derived from sediment quality guidelines contained in National Oceanographic and Atmospheric Administration (NOAA) Screening Quick Reference Tables (SQuiRT, Buchman, 1999).</u></p> <p><sup>+</sup> <u>Applies to sum of all congener or isomer or homolog or Aroclor analyses.</u></p> <p><sup>NA</sup> <u>No applicable standards exist.</u></p> <p><u>Sediment targets were derived from sediment quality guidelines contained in National Oceanographic and Atmospheric Administration (NOAA) Screening Quick Reference Tables (SQRT, Buchman, 1999). SQRTs were developed for internal NOAA use only. Regional Board staff find they represent the best science available for sediment targets to protect beneficial uses. The State Water Resources Control Board may adopt sediment quality objectives (SQOs) during the Implementation Plan of this TMDL, at which time the Regional Board may revise the TMDL to include those standards.</u></p> <p style="text-align: center;"><b>Sediment Quality Targets (ng/dry Kg)<sup>4</sup></b></p> <table><tr><th>Constituent</th><th>Freshwater, TEL<sup>9</sup></th><th>Marine<sup>10</sup>, ERL<sup>11</sup></th></tr></table>	Constituent	Fish Tissue Targets (µg/Kg)	Aldrin	50.00.050	Chlordane	830.0.3	Dacthal	(a) <sup>7</sup> NA	4,4'-DDD	-45,000.0	4,4'-DDE	-32,000.0	4,4'-DDT	-32,000.0	Dieldrin	650.00.65	Endosulfan I	65,000,000.0	Endosulfan II	65,000,000.0	Endrin	3,200,000.0	HCH (alpha-BHC)	1,700.00	HCH (beta-BHC)	6,000.0	HCH (delta-BHC)	(a) <sup>1</sup> NA	HCH (gamma BHC)	8,200.	Heptachlor	2,400.0	Heptachlor Epoxide	1,200.0	PCBs	5,300.03 <sup>8+</sup>	Toxaphene	9,800.0	Constituent	Freshwater, TEL <sup>9</sup>	Marine <sup>10</sup> , ERL <sup>11</sup>
Constituent	Fish Tissue Targets (µg/Kg)																																									
Aldrin	50.00.050																																									
Chlordane	830.0.3																																									
Dacthal	(a) <sup>7</sup> NA																																									
4,4'-DDD	-45,000.0																																									
4,4'-DDE	-32,000.0																																									
4,4'-DDT	-32,000.0																																									
Dieldrin	650.00.65																																									
Endosulfan I	65,000,000.0																																									
Endosulfan II	65,000,000.0																																									
Endrin	3,200,000.0																																									
HCH (alpha-BHC)	1,700.00																																									
HCH (beta-BHC)	6,000.0																																									
HCH (delta-BHC)	(a) <sup>1</sup> NA																																									
HCH (gamma BHC)	8,200.																																									
Heptachlor	2,400.0																																									
Heptachlor Epoxide	1,200.0																																									
PCBs	5,300.03 <sup>8+</sup>																																									
Toxaphene	9,800.0																																									
Constituent	Freshwater, TEL <sup>9</sup>	Marine <sup>10</sup> , ERL <sup>11</sup>																																								

TMDL Element	Calleguas Creek <u>Watershed</u> OC Pesticide, PCBs, and Siltation TMDL		
	Aldrin	<del>NA(a)<sup>1</sup></del>	<del>NA(a)<sup>1</sup></del>
	Chlordane	<del>4,500.0-5</del>	<del>500.0-0.5</del>
	Dacthal	<del>(a)<sup>1</sup>NA</del>	<del>(a)<sup>1</sup>NA</del>
	4,4'-DDD	<del>3,500.0-5</del>	<del>2,000.0-2.0</del>
	4,4'-DDE	<del>1,400.0-4</del>	<del>2,200.0-2.2</del>
	4,4'-DDT	<del>NA(a)<sup>1</sup></del>	<del>-1,000.0-0</del>
	Dieldrin	<del>2,900.0-9</del>	<del>-20.0-0.02</del>
	Endosulfan I	<del>NA(a)<sup>1</sup></del>	<del>N(a)<sup>1</sup>A</del>
	Endosulfan II	<del>NA(a)<sup>1</sup></del>	<del>(a)<sup>1</sup>NA</del>
	Endrin	<del>2,700.0-7</del>	<del>NA(a)<sup>1</sup></del>
	HCH (alpha-BHC)	<del>(a)<sup>1</sup></del>	<del>(a)<sup>1</sup>NA</del>
	<del>NA</del>		
	HCH (beta-BHC)	<del>(a)<sup>1</sup></del>	<del>(a)<sup>1</sup>NA</del>
	<del>NA<sup>1</sup></del>		
	HCH (delta-BHC)	<del>(a)<sup>1</sup></del>	<del>(a)<sup>1</sup>NA</del>
	<del>NA<sup>1</sup></del>		
	HCH (gamma BHC)	<del>940.00-94</del>	<del>(a)<sup>1</sup>NA</del>
	Heptachlor	<del>(a)<sup>1</sup></del>	<del>(a)<sup>1</sup>NA</del>
	<del>NA</del>		
	Heptachlor Epoxide	<del>600.00-6</del>	<del>NA(a)<sup>1</sup></del>
	PCBs	<del>34,000.0<sup>2</sup></del>	<del>23,000.0</del>
	Toxaphene	<del>(a)<sup>1</sup></del>	<del>(a)<sup>1</sup></del>
	<b><u>Siltation Targets</u></b>		
	<del>NA</del>	<del>NA</del>	
	<sup>1</sup> <del>TEL = Threshold Effects Level; ERL = Effects Range Low;</del>		
	<del>NA No applicable standards exist.</del>		
	<u>This TMDL includes two numeric targets for siltation reduction and maintenance of existing habitat in Mugu Lagoon which are listed below:-</u>		
	<ul style="list-style-type: none"> <li><u>Siltation reduction</u>  <del>The first is an annual</del>Annual average reduction in the import of silt of 5,23000 tons/year, which will be measured at the US Naval Base total suspended sediment gauge at the entrance to Mugu Lagoon.</li> <li><u>Maintenance of existing habitat in Mugu Lagoon</u> The second <del>Pis the</del> preservation of the existing 1400 acres of aquatic habitat in Mugu Lagoon.</li> </ul>		
	The following tables provide the numeric targets for water, fish tissue, and sediment for this TMDL. <del>Targets for water</del> <u>Water column targets</u> were derived from the California Toxics Rule (CTR) <del>water quality criteria for protection of aquatic life. Chronic criteria</del>		

TMDL Element	Calleguas Creek Watershed OC Pesticide, PCBs, and Siltation TMDL																																																																																						
	<p><del>(Criteria Continuous Concentration, or CCC) were applied unless otherwise noted in the table below; otherwise, acute criteria (Criteria Maximum Concentration, or CMC) were applied:</del></p> <table><tr><th colspan="3"><del>Water Quality Targets (µg/L)</del></th></tr><tr><th><del>Constituent</del></th><th><del>Freshwater</del></th><th><del>Marine</del></th></tr><tr><td><del>Aldrin</del></td><td><del>3.0<sup>1</sup></del></td><td><del>1.3<sup>1</sup></del></td></tr><tr><td><del>Chlordane</del></td><td><del>0.0043</del></td><td><del>0.0040</del></td></tr><tr><td><del>Daethal</del></td><td><del>3500<sup>2</sup></del></td><td><del>NA<sup>2</sup></del></td></tr><tr><td><del>4,4' DDD</del></td><td><del>NA</del></td><td><del>NA</del></td></tr><tr><td><del>4,4' DDE</del></td><td><del>NA</del></td><td><del>NA</del></td></tr><tr><td><del>4,4' DDT</del></td><td><del>0.001</del></td><td><del>0.001</del></td></tr><tr><td><del>Dieldrin</del></td><td><del>0.056</del></td><td><del>0.0019</del></td></tr><tr><td><del>Endosulfan I</del></td><td><del>0.056</del></td><td><del>0.0087</del></td></tr><tr><td><del>Endosulfan II</del></td><td><del>0.056</del></td><td><del>0.0087</del></td></tr><tr><td><del>Endrin</del></td><td><del>0.036</del></td><td><del>0.0023</del></td></tr><tr><td><del>HCH (alpha BHC)</del></td><td><del>NA</del></td><td><del>NA</del></td></tr><tr><td><del>HCH (beta BHC)</del></td><td><del>NA</del></td><td><del>NA</del></td></tr><tr><td><del>HCH (delta BHC)</del></td><td><del>NA</del></td><td><del>NA</del></td></tr><tr><td><del>HCH (gamma BHC)</del></td><td><del>0.95<sup>1</sup></del></td><td><del>0.16<sup>1</sup></del></td></tr><tr><td><del>Heptachlor</del></td><td><del>0.0038</del></td><td><del>0.0036</del></td></tr><tr><td><del>Heptachlor Epoxide</del></td><td><del>0.0038</del></td><td><del>0.0036</del></td></tr><tr><td><del>PCBs</del></td><td><del>0.014<sup>3</sup></del></td><td><del>0.030<sup>3</sup></del></td></tr><tr><td><del>Toxaphene</del></td><td><del>0.00020</del></td><td><del>0.00020</del></td></tr></table> <p><sup>1</sup> <del>No chronic criteria exist; acute criteria are used.</del> <sup>2</sup> <del>No chronic or acute criteria exist, drinking water standard of 3500 ug/L adopted by Florida and Arizona is applied for freshwater.</del> <sup>3</sup> <del>PCBs in water are measured as sum of seven Aroclors.</del> <sup>NA</sup> <del>No applicable standards exist.</del></p> <p><del>Fish tissue targets are derived from CTR human health criteria for consumption of organisms. Note: We may want to add some BG info about how these targets were calculated (reference Technical Document, footnote in table, etc)</del></p> <table><tr><th><del>Constituent</del></th><th><del>Fish Tissue Targets (µg/Kg)</del></th></tr><tr><td><del>Aldrin</del></td><td><del>0.050</del></td></tr><tr><td><del>Chlordane</del></td><td><del>8.3</del></td></tr><tr><td><del>Daethal</del></td><td><del>NA</del></td></tr><tr><td><del>4,4' DDD</del></td><td><del>45</del></td></tr><tr><td><del>4,4' DDE</del></td><td><del>32</del></td></tr><tr><td><del>4,4' DDT</del></td><td><del>32</del></td></tr><tr><td><del>Dieldrin</del></td><td><del>0.65</del></td></tr><tr><td><del>Endosulfan I</del></td><td><del>65,000</del></td></tr><tr><td><del>Endosulfan II</del></td><td><del>65,000</del></td></tr><tr><td><del>Endrin</del></td><td><del>3,200</del></td></tr><tr><td><del>HCH (alpha BHC)</del></td><td><del>1.7</del></td></tr><tr><td><del>HCH (beta BHC)</del></td><td><del>6.0</del></td></tr></table>	<del>Water Quality Targets (µg/L)</del>			<del>Constituent</del>	<del>Freshwater</del>	<del>Marine</del>	<del>Aldrin</del>	<del>3.0<sup>1</sup></del>	<del>1.3<sup>1</sup></del>	<del>Chlordane</del>	<del>0.0043</del>	<del>0.0040</del>	<del>Daethal</del>	<del>3500<sup>2</sup></del>	<del>NA<sup>2</sup></del>	<del>4,4' DDD</del>	<del>NA</del>	<del>NA</del>	<del>4,4' DDE</del>	<del>NA</del>	<del>NA</del>	<del>4,4' DDT</del>	<del>0.001</del>	<del>0.001</del>	<del>Dieldrin</del>	<del>0.056</del>	<del>0.0019</del>	<del>Endosulfan I</del>	<del>0.056</del>	<del>0.0087</del>	<del>Endosulfan II</del>	<del>0.056</del>	<del>0.0087</del>	<del>Endrin</del>	<del>0.036</del>	<del>0.0023</del>	<del>HCH (alpha BHC)</del>	<del>NA</del>	<del>NA</del>	<del>HCH (beta BHC)</del>	<del>NA</del>	<del>NA</del>	<del>HCH (delta BHC)</del>	<del>NA</del>	<del>NA</del>	<del>HCH (gamma BHC)</del>	<del>0.95<sup>1</sup></del>	<del>0.16<sup>1</sup></del>	<del>Heptachlor</del>	<del>0.0038</del>	<del>0.0036</del>	<del>Heptachlor Epoxide</del>	<del>0.0038</del>	<del>0.0036</del>	<del>PCBs</del>	<del>0.014<sup>3</sup></del>	<del>0.030<sup>3</sup></del>	<del>Toxaphene</del>	<del>0.00020</del>	<del>0.00020</del>	<del>Constituent</del>	<del>Fish Tissue Targets (µg/Kg)</del>	<del>Aldrin</del>	<del>0.050</del>	<del>Chlordane</del>	<del>8.3</del>	<del>Daethal</del>	<del>NA</del>	<del>4,4' DDD</del>	<del>45</del>	<del>4,4' DDE</del>	<del>32</del>	<del>4,4' DDT</del>	<del>32</del>	<del>Dieldrin</del>	<del>0.65</del>	<del>Endosulfan I</del>	<del>65,000</del>	<del>Endosulfan II</del>	<del>65,000</del>	<del>Endrin</del>	<del>3,200</del>	<del>HCH (alpha BHC)</del>	<del>1.7</del>	<del>HCH (beta BHC)</del>	<del>6.0</del>
<del>Water Quality Targets (µg/L)</del>																																																																																							
<del>Constituent</del>	<del>Freshwater</del>	<del>Marine</del>																																																																																					
<del>Aldrin</del>	<del>3.0<sup>1</sup></del>	<del>1.3<sup>1</sup></del>																																																																																					
<del>Chlordane</del>	<del>0.0043</del>	<del>0.0040</del>																																																																																					
<del>Daethal</del>	<del>3500<sup>2</sup></del>	<del>NA<sup>2</sup></del>																																																																																					
<del>4,4' DDD</del>	<del>NA</del>	<del>NA</del>																																																																																					
<del>4,4' DDE</del>	<del>NA</del>	<del>NA</del>																																																																																					
<del>4,4' DDT</del>	<del>0.001</del>	<del>0.001</del>																																																																																					
<del>Dieldrin</del>	<del>0.056</del>	<del>0.0019</del>																																																																																					
<del>Endosulfan I</del>	<del>0.056</del>	<del>0.0087</del>																																																																																					
<del>Endosulfan II</del>	<del>0.056</del>	<del>0.0087</del>																																																																																					
<del>Endrin</del>	<del>0.036</del>	<del>0.0023</del>																																																																																					
<del>HCH (alpha BHC)</del>	<del>NA</del>	<del>NA</del>																																																																																					
<del>HCH (beta BHC)</del>	<del>NA</del>	<del>NA</del>																																																																																					
<del>HCH (delta BHC)</del>	<del>NA</del>	<del>NA</del>																																																																																					
<del>HCH (gamma BHC)</del>	<del>0.95<sup>1</sup></del>	<del>0.16<sup>1</sup></del>																																																																																					
<del>Heptachlor</del>	<del>0.0038</del>	<del>0.0036</del>																																																																																					
<del>Heptachlor Epoxide</del>	<del>0.0038</del>	<del>0.0036</del>																																																																																					
<del>PCBs</del>	<del>0.014<sup>3</sup></del>	<del>0.030<sup>3</sup></del>																																																																																					
<del>Toxaphene</del>	<del>0.00020</del>	<del>0.00020</del>																																																																																					
<del>Constituent</del>	<del>Fish Tissue Targets (µg/Kg)</del>																																																																																						
<del>Aldrin</del>	<del>0.050</del>																																																																																						
<del>Chlordane</del>	<del>8.3</del>																																																																																						
<del>Daethal</del>	<del>NA</del>																																																																																						
<del>4,4' DDD</del>	<del>45</del>																																																																																						
<del>4,4' DDE</del>	<del>32</del>																																																																																						
<del>4,4' DDT</del>	<del>32</del>																																																																																						
<del>Dieldrin</del>	<del>0.65</del>																																																																																						
<del>Endosulfan I</del>	<del>65,000</del>																																																																																						
<del>Endosulfan II</del>	<del>65,000</del>																																																																																						
<del>Endrin</del>	<del>3,200</del>																																																																																						
<del>HCH (alpha BHC)</del>	<del>1.7</del>																																																																																						
<del>HCH (beta BHC)</del>	<del>6.0</del>																																																																																						

T  
E  
N  
T  
A  
T  
I  
V  
E

TMDL Element	Calleguas Creek Watershed OC Pesticide, PCBs, and Siltation TMDL																																																											
	<div>HCH (delta BHC) ————— NA</div> <div>HCH (gamma BHC) ————— 8.2</div> <div>Heptachlor ————— 2.4</div> <div>Heptachlor Epoxide ————— 1.2</div> <div>PCBs ————— 5.3<sup>±</sup></div> <div>Toxaphene ————— 9.8</div> <div><sup>±</sup> —Applies to sum of all congener or isomer or homolog or Aroclor analyses.</div> <div><sup>NA</sup> —No applicable standards exist.</div> <div>Sediment targets were derived from sediment quality guidelines contained in NOAA Screening Quick Reference Tables (Buchman, 1999).<sup>4</sup> These guidelines are intended for preliminary screening purposes only, they do not represent official NOAA policy and do not constitute criteria or clean-up levels. Consequently, the guidelines are used as numeric targets only for reaches with sediment listings as a basis for comparison to the sediment allocations developed through the methodology described in the allocations section. Regional Board staff find they represent the best science available for sediment targets to protect beneficial uses. The State Water Resources Control Board may adopt sediment quality objectives (SQOs) during the life of this TMDL, at which time the Regional Board may revise the TMDL to include those standards.. TEL = Threshold Effects Level; ERL = Effects Range Low.</div> <div><table><tr><th rowspan="2">Constituent</th><th colspan="2">Sediment Targets (ug/dry kg)<sup>±</sup></th></tr><tr><th>Freshwater, TEL</th><th>Marine, ERL</th></tr><tr><td>Aldrin</td><td>NA</td><td>NA</td></tr><tr><td>Chlordane</td><td>4.5</td><td>0.5</td></tr><tr><td>Daethal</td><td>NA</td><td>NA</td></tr><tr><td>4,4' DDD</td><td>3.5</td><td>2.0</td></tr><tr><td>4,4' DDE</td><td>1.4</td><td>2.2</td></tr><tr><td>4,4' DDT</td><td>NA</td><td>1.0</td></tr><tr><td>Dieldrin</td><td>2.9</td><td>0.720.02</td></tr><tr><td>Endosulfan I</td><td>NA</td><td>NA</td></tr><tr><td>Endosulfan II</td><td>NA</td><td>NA</td></tr><tr><td>Endrin</td><td>2.7</td><td>NA</td></tr><tr><td>HCH (alpha BHC)</td><td>NA</td><td>NA</td></tr><tr><td>HCH (beta BHC)</td><td>NA</td><td>NA</td></tr><tr><td>HCH (delta BHC)</td><td>NA</td><td>NA</td></tr><tr><td>HCH (gamma BHC)</td><td>0.94</td><td>0.32NA</td></tr><tr><td>Heptachlor</td><td>NA</td><td>NA</td></tr><tr><td>Heptachlor Epoxide</td><td>0.6</td><td>NA</td></tr><tr><td>PCBs</td><td>34<sup>3</sup></td><td>23<sup>3</sup></td></tr><tr><td>Toxaphene</td><td>0.00020NA</td><td>0.00020NA</td></tr></table></div>	Constituent	Sediment Targets (ug/dry kg) <sup>±</sup>		Freshwater, TEL	Marine, ERL	Aldrin	NA	NA	Chlordane	4.5	0.5	Daethal	NA	NA	4,4' DDD	3.5	2.0	4,4' DDE	1.4	2.2	4,4' DDT	NA	1.0	Dieldrin	2.9	0.720.02	Endosulfan I	NA	NA	Endosulfan II	NA	NA	Endrin	2.7	NA	HCH (alpha BHC)	NA	NA	HCH (beta BHC)	NA	NA	HCH (delta BHC)	NA	NA	HCH (gamma BHC)	0.94	0.32NA	Heptachlor	NA	NA	Heptachlor Epoxide	0.6	NA	PCBs	34 <sup>3</sup>	23 <sup>3</sup>	Toxaphene	0.00020NA	0.00020NA
Constituent	Sediment Targets (ug/dry kg) <sup>±</sup>																																																											
	Freshwater, TEL	Marine, ERL																																																										
Aldrin	NA	NA																																																										
Chlordane	4.5	0.5																																																										
Daethal	NA	NA																																																										
4,4' DDD	3.5	2.0																																																										
4,4' DDE	1.4	2.2																																																										
4,4' DDT	NA	1.0																																																										
Dieldrin	2.9	0.720.02																																																										
Endosulfan I	NA	NA																																																										
Endosulfan II	NA	NA																																																										
Endrin	2.7	NA																																																										
HCH (alpha BHC)	NA	NA																																																										
HCH (beta BHC)	NA	NA																																																										
HCH (delta BHC)	NA	NA																																																										
HCH (gamma BHC)	0.94	0.32NA																																																										
Heptachlor	NA	NA																																																										
Heptachlor Epoxide	0.6	NA																																																										
PCBs	34 <sup>3</sup>	23 <sup>3</sup>																																																										
Toxaphene	0.00020NA	0.00020NA																																																										

TMDL Element	Calleguas Creek <u>Watershed</u> OC Pesticide, PCBs, and Siltation TMDL
	<p><sup>†</sup>TEL = Threshold Effects Level; ERL = Effects Range Low;  <sup>NA</sup> - No applicable standards exist.</p> <p><del>This TMDL also includes two numeric targets for siltation reduction and maintenance of existing habitat in Mugu Lagoon. The first is an annual average reduction in the import of silt of 3000 tons/year, which will be measured at the Navy' total suspended sediment gauge at the entrance to Mugu Lagoon. The second is the preservation of the existing 1400 acres of habitat in Mugu Lagoon.</del>  <del>^^ PENDING FINALIZATION OF SEDIMENTATION/SILTATION TMDL</del></p>
Source Analysis	<p>Monitoring data from major NPDES discharges and land use runoff were analyzed to estimate the magnitude of OC pesticides and PCBs loads to Calleguas Creek, its tributaries and Mugu Lagoon. The largest source of OC pesticides in the listed waters is agricultural runoff. Most PCB residues are due to past use of PCBs as coolants and lubricants in transformers, capacitors, and other electrical equipment. Atmospheric deposition is also a potential source of PCBs. Urban runoff and POTWs are minor sources of OC pesticides and PCBs. Data analysis suggests that groundwater, atmospheric deposition, and imported water are not significant sources of OC pesticides, PCBs, or sediment. Further evaluation of these sources is set forth in the Implementation Plan.</p>
Linkage Analysis	<p>The linkage analysis is based on a conceptual model for the fate, transformation, and uptake of OC pesticides and PCBs and a mass-balance model that connects the sources of OC pesticides and PCBs to their fate and transport in Calleguas Creek, its tributaries, <del>segments</del> and Mugu Lagoon. The linkage analysis indicates: 1) OC pesticides and PCBs concentrations in tissue are proportional to OC pesticides and PCBs concentrations in sediments; 2) OC pesticides and PCBs concentrations in water are a function of OC <u>pesticides and PCBs</u> concentrations in sediment; and 3) OC pesticides and PCBs concentrations in sediment are a function of OC pesticides and PCBs loading and sediment transport. Because sediments store, convey and serve as a source of OC pesticides and PCBs, a reduction of OC pesticides and PCBs <u>concentrations</u> in sediment will result in a reduction of OC pesticides and PCBs <u>concentration</u> in the water column and fish tissue. In this linkage analysis, DDE is used as a representative constituent, because DDE is consistently detected in monitoring and exceeds numeric targets in water, sediment, and tissue samples. Also, other OC Pesticides and PCBs possess similar physical and chemical properties to DDE.</p>

T  
E  
N  
T  
A  
T  
I  
V  
E



TMDL Element	Calleguas Creek <u>Watershed</u> OC Pesticide, PCBs, and Siltation TMDL
Wasteload Allocations	<p><del>Wasteload allocations are assigned to the Hill Canyon Wastewater Treatment Facility, Camarillo Wastewater Treatment Plant, Camrosa Wastewater Reclamation Facility, Simi Valley Water Quality Control Plant, Ventura County Wastewater Treatment Plant, NPDES stormwater permittees (including MS4, Caltrans, industrial stormwater, and construction stormwater permittees) the MS4 and Caltrans stormwater NPDES permittees, and other NPDES permittees.</del></p> <p><del>For the POTWs and NPDES permittees, other than MS4 and other other than stormwater permittees, daily and monthly concentration based allocations for water are developed based on requirements to meet acute and chronic in-stream targets in accordance with guidance provided in the State Implementation Plan (SIP). US EPA, LARWQCB, and POTW representatives in the CCW agreed on this approach after considering a range of alternatives and based on the ability to reevaluate the allocations using information developed through the implementation plan. The Regional Board may revise final WLAs and LAs based on sSpecial studies included in the Implementation Plan sectionImplementation Pplan. will seek to ascertain whether the final WLAs and LAs are attainable, gather information necessary to calculate loads for use as allocations, and evaluate linkages between allocations and impacts on fish tissue concentrations, human health, and wildlife and the WLAs and LAs will be reevaluated if necessary. Interim wasteload allocations for water are developed based on POTW performance data as reported by the POTW NPDES monitoring programs. There is an insufficient number of detected values in the POTW NPDES data sets for statistical analysis and calculation of percentiles. Consequently, daily and monthly interim allocations are based on the maximum detected concentration of NPDES effluent data for each POTW and constituent. If there are no detected data, the interim allocation is based on the Minimum Level defined in the State Implementation Plan. For NPDES permittees, other than POTWs and stormwater permittees, waste loads are allocated as presented below. in accordance with the subwatersheds where the discharges are located. NOTE&lt;-- please explain more clearly... does this mean these are the only entities with water column allocations measured at the base of each subwatershed (is that problematic?)</del></p> <p><del>For MS4 and other stormwater permittees, concentration based allocations for sediment are developed based on CTR aquatic life</del></p>

T  
E  
N  
T  
A  
T  
I  
V  
E

TMDL Element	Calleguas Creek <u>Watershed</u> OC Pesticide, PCBs, and Siltation TMDL
	<p><del>standards criteria and fish tissue concentrations which are also based on the CTR. The methodology used to develop these allocations entails:</del></p> <ul style="list-style-type: none"> <li><del>• calculating the percent reduction required in the water column by comparing existing concentrations to numeric targets;</del></li> <li><del>• calculating the percent reduction required in fish tissue by comparing existing concentrations to numeric targets;</del></li> <li><del>• for reaches with no sediment listing, assigning the larger percent reduction required for water or fish tissue concentrations as the percent reduction required for sediment concentrations (based on assumption that a given percent reduction in fish tissue or water concentration results from an equal percent reduction in sediment concentration) and calculating the final sediment concentration WLA accordingly;</del></li> <li><del>• for reaches with sediment listings, comparing the allowable concentration generated using the assumption of equal percent reduction to the sediment guidelines from NOAA and assigning the more stringent of the two values as the final WLA.</del></li> </ul> <p><del>Compliance with sediment based WLAs is measured as an in-stream annual average at the base of each subwatershed where the discharges are located.</del></p> <p><del>Interim waste load allocations for stormwater permittees are developed on the 95th percentile of sediment based concentrations collected from surface waters in the Calleguas Creek watershed. When the data set for a constituent is not adequate for statistical analysis, the maximum value detected in each subwatershed is used. If there are no detected data, the interim allocation is based on the interim allocation for the downstream subwatershed. For MS4 permittees and other stormwater permittees, sediment based interim wasteload allocations are allocated in accordance with the subwatersheds where the discharges are located and are applied as annual averages.</del></p> <p><b>1. Interim and Final <u>-WLAs* for Pollutants in EffluentSediment</u> for POTWs.</b></p> <p><u>The interim wasteload allocations for POTWs will be re-considered by the Regional Board on a 5-year basis. This re-consideration will be based on sufficient data to calculate Interim Wasteload Allocations in accordance with SIP procedures.</u></p>

TMDL Element	Calleguas Creek Watershed OC Pesticide, PCBs, and Siltation TMDL										
	a) Interim Effluent WLAs (ng/L)										
	Constituent		POTW								
		Hill Canyon		Simi Valley		Moorpark		Camarillo		Camrosa	
		Daily		Daily		Daily		Daily		Daily	
	Chlordane	1.22	400 <sup>+</sup>		-100.0		-100.0		-100.0		-100.0
	100.0										
	4,4-DDD	20.0 <sup>+2</sup>		-50.0	-	50.0	-	6.0	-	50.0	
	4,4- DDE	260.0 <sup>+2</sup>	-	1.25 <sup>+2</sup>	-	1.2 <sup>+2</sup>		-188.0 <sup>+2</sup>			
	50.0										
	4,4-DDT	10.0		-10.0		-10.0		-10.0		-10.0	
	Dieldrin	10.0		-10.0		-10.0		-10.0		-10.0	
	PCBs	500.0		-500.0		-500.0		-31.0 <sup>+2</sup>		-500.0	
	Toxaphene	500.0		-500.0		-500.0		-500.0		-500.0	
	* WLAs shall be applied to POTWs'effluent										
	<sup>1</sup> Interim wasteload allocations are based on the maximum detected value.										
	<sup>2</sup> Interim wasteload allocations are based on the maximum detected value.										
	b) Final Effluent WLAs (ng/L)										
	Constituent		POTW								
		Hill Canyon		Simi Valley		Moorpark		Camarillo		Camrosa	
		Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly
	Chlordane	1.2	0.59	1.2	0.59	1.2	0.59	1.2	0.59	1.2	0.59
	4,4-DDD	1.7	0.84	1.7	0.84	1.7	0.84	1.7	0.84	1.7	0.84
	4,4- DDE	1.2	0.59	1.2	0.59	1.2	0.59	1.2	0.59	1.2	0.59
	4,4-DDT	1.2	0.59	1.2	0.59	1.2	0.59	1.2	0.59	1.2	0.59
	Dieldrin	0.28	0.14	0.28	0.14	0.28	0.14	0.28	0.14	0.28	0.14
	PCBs	0.34	0.17	0.34	0.17	0.34	0.17	0.34	0.17	0.34	0.17
	Toxaphene	0.33	0.16	0.33	0.16	0.33	0.16	0.33	0.16	0.33	0.16
	Epoxide										
	The final WLAs will be included in NPDES permits in accordance with schedule in the implementation plan. The Regional Board may -subject to the following condition: WLAs may be revised final WLAs prior to the dates they are placed into permits and/or prior to the dates of final WLA achievement based on special studies and monitoring of this TMDL. Any revisions to these WLAs are to be based on the collection of additional information as described in the Implementation Plan.										

TMDL Element	Calleguas Creek Watershed OC Pesticide, PCBs, and Siltation TMDL																																																																																																																					
	<div>2. <u>Interim and Final WLAs for Pollutants in Sediment for Wasteload Allocations for Stormwater Permittees</u></div> <div><u>WLAs for stormwater permittees are provided in the Tables below. The Mugu Lagoon subwatershed includes Duck Pond/Agricultural Drain/Mugu/Oxnard Drain #2.</u></div> <div><u>a)WLAs in sediment (ng/g)</u></div> <div><u>a)</u></div> <div><u>—Interim <del>sediment</del> <u>Sediment</u> WLAs (ng/g)</u></div> <div><table><tr><th rowspan="2">Constituent</th><th colspan="6">Subwatershed</th></tr><tr><th>Mugu Lagoon<sup>1</sup></th><th>Calleguas Creek</th><th>Revolon Slough</th><th>Arroyo Las Posas</th><th>Arroyo Simi</th><th>Conejo Creek</th></tr><tr><td>Chlordane</td><td>25.0</td><td>— 17.0</td><td>—48.0</td><td>—3.3</td><td>3.3</td><td>3.4</td></tr><tr><td>4,4-DDD</td><td>69.0</td><td>—66.0</td><td>—400.0</td><td>—290.0</td><td>—14.0<sup>2</sup></td><td>5.3</td></tr><tr><td>4,4- DDE</td><td>300.0</td><td>— 470.0</td><td>—1,600.0</td><td>—950.0</td><td>—170.0</td><td>20.0</td></tr><tr><td>4,4-DDT</td><td>39.0</td><td>—110.0</td><td>—690.0</td><td>— 670.0</td><td>— 25.0</td><td>2.0</td></tr><tr><td>Dieldrin</td><td>19.0</td><td>— 3.0</td><td>—5.7</td><td>1.1</td><td>1.1</td><td>3.0</td></tr><tr><td>PCBs</td><td>180.0</td><td>—3,800.0</td><td>—7,600.0</td><td>—25,700.0</td><td>—25,700.0</td><td>3,800.0</td></tr><tr><td>Toxaphene</td><td>22,900.0</td><td>— 260.0</td><td>—790.0</td><td>— 230.0</td><td>—230.0</td><td>260.0</td></tr></table><div><u>Compliance with sediment based WLAs is measured as an in-stream annual average at the base of each subwatershed where the discharges are located.</u></div><div><u>b) <del>Final sediment</del> <u>Sediment</u> WLAs (ng/g)<sup>1</sup></u></div><div><table><tr><th rowspan="2">Constituent</th><th colspan="6">Subwatershed</th></tr><tr><th>Mugu Lagoon<sup>1</sup></th><th>Calleguas Creek</th><th>Revolon Slough</th><th>Arroyo Las Posas</th><th>Arroyo Simi</th><th>Conejo Creek</th></tr><tr><td>Chlordane</td><td>3.3</td><td>3.3</td><td>0.9</td><td>3.3</td><td>3.3</td><td>3.3</td></tr><tr><td>4,4-DDD</td><td>2.01<sup>2</sup></td><td>— 2.01<sup>2</sup></td><td>—</td><td>2.01<sup>2</sup></td><td>2.01<sup>2</sup></td><td>1.22.0<sup>2</sup></td></tr><tr><td>4,4- DDE</td><td>2.24<sup>2</sup></td><td>1.4<sup>2</sup></td><td>1.4<sup>2</sup></td><td>1.4<sup>2</sup></td><td>1.4<sup>2</sup></td><td>1.4<sup>2</sup></td></tr><tr><td>4,4-DDT</td><td>0.3</td><td>0.3</td><td>0.3</td><td>0.3</td><td>0.3</td><td>0.3</td></tr><tr><td>Dieldrin</td><td>4.3</td><td>0.2</td><td>0.1</td><td>0.2</td><td>0.2</td><td>0.2</td></tr><tr><td>PCBs</td><td>180.0</td><td>—120.0</td><td>— 130.0</td><td>—120.0</td><td>—120.0</td><td>120.0</td></tr></table></div></div>	Constituent	Subwatershed						Mugu Lagoon <sup>1</sup>	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek	Chlordane	25.0	— 17.0	—48.0	—3.3	3.3	3.4	4,4-DDD	69.0	—66.0	—400.0	—290.0	—14.0 <sup>2</sup>	5.3	4,4- DDE	300.0	— 470.0	—1,600.0	—950.0	—170.0	20.0	4,4-DDT	39.0	—110.0	—690.0	— 670.0	— 25.0	2.0	Dieldrin	19.0	— 3.0	—5.7	1.1	1.1	3.0	PCBs	180.0	—3,800.0	—7,600.0	—25,700.0	—25,700.0	3,800.0	Toxaphene	22,900.0	— 260.0	—790.0	— 230.0	—230.0	260.0	Constituent	Subwatershed						Mugu Lagoon <sup>1</sup>	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek	Chlordane	3.3	3.3	0.9	3.3	3.3	3.3	4,4-DDD	2.01 <sup>2</sup>	— 2.01 <sup>2</sup>	—	2.01 <sup>2</sup>	2.01 <sup>2</sup>	1.22.0 <sup>2</sup>	4,4- DDE	2.24 <sup>2</sup>	1.4 <sup>2</sup>	1.4 <sup>2</sup>	1.4 <sup>2</sup>	1.4 <sup>2</sup>	1.4 <sup>2</sup>	4,4-DDT	0.3	0.3	0.3	0.3	0.3	0.3	Dieldrin	4.3	0.2	0.1	0.2	0.2	0.2	PCBs	180.0	—120.0	— 130.0	—120.0	—120.0	120.0
Constituent	Subwatershed																																																																																																																					
	Mugu Lagoon <sup>1</sup>	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek																																																																																																																
Chlordane	25.0	— 17.0	—48.0	—3.3	3.3	3.4																																																																																																																
4,4-DDD	69.0	—66.0	—400.0	—290.0	—14.0 <sup>2</sup>	5.3																																																																																																																
4,4- DDE	300.0	— 470.0	—1,600.0	—950.0	—170.0	20.0																																																																																																																
4,4-DDT	39.0	—110.0	—690.0	— 670.0	— 25.0	2.0																																																																																																																
Dieldrin	19.0	— 3.0	—5.7	1.1	1.1	3.0																																																																																																																
PCBs	180.0	—3,800.0	—7,600.0	—25,700.0	—25,700.0	3,800.0																																																																																																																
Toxaphene	22,900.0	— 260.0	—790.0	— 230.0	—230.0	260.0																																																																																																																
Constituent	Subwatershed																																																																																																																					
	Mugu Lagoon <sup>1</sup>	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek																																																																																																																
Chlordane	3.3	3.3	0.9	3.3	3.3	3.3																																																																																																																
4,4-DDD	2.01 <sup>2</sup>	— 2.01 <sup>2</sup>	—	2.01 <sup>2</sup>	2.01 <sup>2</sup>	1.22.0 <sup>2</sup>																																																																																																																
4,4- DDE	2.24 <sup>2</sup>	1.4 <sup>2</sup>	1.4 <sup>2</sup>	1.4 <sup>2</sup>	1.4 <sup>2</sup>	1.4 <sup>2</sup>																																																																																																																
4,4-DDT	0.3	0.3	0.3	0.3	0.3	0.3																																																																																																																
Dieldrin	4.3	0.2	0.1	0.2	0.2	0.2																																																																																																																
PCBs	180.0	—120.0	— 130.0	—120.0	—120.0	120.0																																																																																																																

TMDL Element	Calleguas Creek Watershed OC Pesticide, PCBs, and Siltation TMDL																																																										
	<div>Toxaphene360.0-0.61.0-0.60.60.6</div> <div><sup>1</sup> The Mugu Lagoon subwatershed includes Duck Pond/Agricultural Drain/Mugu/Oxnard Drain #2.</div> <div>Compliance with sediment based WLAs is measured as an in-stream annual average at the base of each subwatershed where the discharges are located.<sup>4</sup> Final allocations set according to percent reduction required for achievement of fish tissue and water column targets, unless otherwise noted</div> <div><sup>2</sup> Final allocation set equal to the sediment guideline value (TEL or ERL)</div> <div>3. Final WLAs for Pollutants in Water Column for Wasteload Allocations for mMinor Ppoint Ssources</div> <div>WLAs for pollutants in water column are allocated below to minor point sources enrolled under NPDES permits or WDRs, which discharge to Calleguas Creek.</div> <div><table><tr><th>Constituent</th><th>Daily Maximum (ng/L)</th><th>Monthly Average (ng/L)</th></tr><tr><td>Chlordane</td><td>1.2</td><td>0.59</td></tr><tr><td>4,4-DDD</td><td>1.7</td><td>0.84</td></tr><tr><td>4,4- DDE</td><td>1.2</td><td>0.59</td></tr><tr><td>4,4-DDT</td><td>1.2</td><td>0.59</td></tr><tr><td>Dieldrin</td><td>0.28</td><td>0.14</td></tr><tr><td>PCBs</td><td>0.34</td><td>0.17</td></tr><tr><td>Toxaphene</td><td>0.33</td><td>0.16</td></tr></table></div> <div>4. Siltation WLA for MS4</div> <div>MS4 dischargers will receive an allocation of 2496 tons/2,496-tons/yr. reduction in sediment yield to Mugu Lagoon. The baseline from which the load reduction will be evaluated will be determined by a special study of this TMDL. The load allocation will apply after the baseline is established, as described in the Implementation Plan.</div> <div><del>Waste loads for the water column are allocated to minor point sources enrolled under NPDES permits or WDRs, which discharge to Calleguas Creek. The latter includes, but is not limited to, the following: individual NPDES permittees and dischargers enrolled under General Permits, as well as industrial, construction, and Caltrans permittees.</del></div> <div>a)Final Monthly Average Water Column WLAs (ng/L)</div> <div><table><tr><th>Constituent</th><th>Subwatershed</th></tr><tr><td>Mugu</td><td>Calleguas</td></tr><tr><td>Lagoon</td><td>Revolon</td></tr><tr><td>Daily</td><td>Arroyo</td></tr><tr><td>Monthly</td><td>Arroyo</td></tr><tr><td>Daily</td><td>Conejo</td></tr><tr><td>Monthly</td><td>Conejo</td></tr><tr><td>Daily</td><td>Creek</td></tr><tr><td>Monthly</td><td>Creek</td></tr><tr><td>Daily</td><td>Slough</td></tr><tr><td>Monthly</td><td>Slough</td></tr><tr><td>Daily</td><td>Las Posas</td></tr><tr><td>Monthly</td><td>Las Posas</td></tr><tr><td>Daily</td><td>Simi</td></tr><tr><td>Monthly</td><td>Simi</td></tr><tr><td>Daily</td><td>Creek</td></tr><tr><td>Monthly</td><td>Creek</td></tr></table></div>	Constituent	Daily Maximum (ng/L)	Monthly Average (ng/L)	Chlordane	1.2	0.59	4,4-DDD	1.7	0.84	4,4- DDE	1.2	0.59	4,4-DDT	1.2	0.59	Dieldrin	0.28	0.14	PCBs	0.34	0.17	Toxaphene	0.33	0.16	Constituent	Subwatershed	Mugu	Calleguas	Lagoon	Revolon	Daily	Arroyo	Monthly	Arroyo	Daily	Conejo	Monthly	Conejo	Daily	Creek	Monthly	Creek	Daily	Slough	Monthly	Slough	Daily	Las Posas	Monthly	Las Posas	Daily	Simi	Monthly	Simi	Daily	Creek	Monthly	Creek
Constituent	Daily Maximum (ng/L)	Monthly Average (ng/L)																																																									
Chlordane	1.2	0.59																																																									
4,4-DDD	1.7	0.84																																																									
4,4- DDE	1.2	0.59																																																									
4,4-DDT	1.2	0.59																																																									
Dieldrin	0.28	0.14																																																									
PCBs	0.34	0.17																																																									
Toxaphene	0.33	0.16																																																									
Constituent	Subwatershed																																																										
Mugu	Calleguas																																																										
Lagoon	Revolon																																																										
Daily	Arroyo																																																										
Monthly	Arroyo																																																										
Daily	Conejo																																																										
Monthly	Conejo																																																										
Daily	Creek																																																										
Monthly	Creek																																																										
Daily	Slough																																																										
Monthly	Slough																																																										
Daily	Las Posas																																																										
Monthly	Las Posas																																																										
Daily	Simi																																																										
Monthly	Simi																																																										
Daily	Creek																																																										
Monthly	Creek																																																										

TMDL Element	Calleguas Creek <u>Watershed</u> OC Pesticide, PCBs, and Siltation TMDL
	<del>Chlordane 1.2 0.59 1.2 0.59 1.2 0.59 1.2 0.59 1.2 0.59</del> <del>4,4 DDD 1.7 0.84 1.7 0.84 1.7 0.84 1.7 0.84 1.7 0.84</del> <del>4,4 DDE 1.2 0.59 1.2 0.59 1.2 0.59 1.2 0.59 1.2 0.59</del> <del>4,4 DDT 1.2 0.59 1.2 0.59 1.2 0.59 1.2 0.59 1.2 0.59</del> <del>Dieldrin 0.28 0.14 0.28 0.14 0.28 0.14 0.28 0.14 0.28 0.14</del> <del>PCBs 0.34 0.17 0.34 0.17 0.34 0.17 0.34 0.17 0.34 0.17</del> <del>Toxaphene 0.33 0.16 0.33 0.16 0.33 0.16 0.33 0.16 0.33 0.16</del>
Load Allocations	<p><del>For agricultural and other nonpoint sources, sediment-based concentration load allocations are developed based on CTR aquatic life standards criteria and fish tissue concentrations which are also based on the CTR. To develop sediment allocations</del><u>The methodology used to develop these allocations entails;</u> receiving water measurements were compared to CTR aquatic life criteria and fish tissue measurements were compared to the fish tissue targets. These comparisons were used to calculate the percent reduction in existing sediment concentrations needed to meet the water column aquatic life and fish tissue targets. The larger percent reduction was applied to existing sediment concentrations to determine the sediment allocation. This allocation was then compared to the sediment targets and the more stringent of the two concentrations was set as the final sediment allocation.</p> <ul style="list-style-type: none"> <li><del>calculating the percent reduction required in the water column by comparing existing concentrations to numeric targets;</del></li> <li><del>calculating the percent reduction required in fish tissue by comparing existing concentrations to numeric targets;</del></li> <li><del>for reaches with no sediment listing, assigning the larger percent reduction required for water or fish tissue concentrations as the percent reduction required for sediment concentrations (based on assumption that a given percent reduction in fish tissue or water concentration results from an equal percent reduction in sediment concentration) and calculating the final sediment concentration LA accordingly;</del></li> <li><del>for reaches with sediment listings, comparing the allowable concentration generated using the assumption of equal percent reduction to the sediment guidelines from NOAA and assigning the more stringent of the two values as the final LA.</del></li> </ul> <p><u>For nonpoint sources, sediment based load allocations are allocated in accordance with the subwatersheds where the discharges are located and are applied as annual averages compliance with sediment based LA as listed below is measured as an in-stream annual average at the base of each subwatershed where the discharges are located.</u></p>

TMDL Element	Calleguas Creek Watershed OC Pesticide, PCBs, and Siltation TMDL																																																														
	<p><del>Interim waste load allocations are developed on the 95th percentile of sediment based concentrations collected from surface waters in the Calleguas Creek watershed. When the data set for a constituent is not adequate for statistical analysis, the maximum value detected in each subwatershed is used. If there are no detected data, the interim allocation is based on the interim allocation for the downstream subwatershed. For nonpoint sources, sediment based interim load allocations are allocated as noted in the table below in accordance with the subwatersheds where the discharges are located and are applied as annual averages.</del></p> <p><b>1. <u>Sediment Load Allocations (LAs) Interim and Final Load Allocations (ng/g)</u></b></p> <p><del>WLAs for nonpoint discharges are provided in the Tables below. The Mugu Lagoon subwatershed includes Duck Pond/Agricultural Drain/Mugu/Oxnard Drain #2.</del></p> <p><b><u>a) Interim Sediment LAs (ng/g)</u></b></p> <table><tr><th rowspan="2">Constituent</th><th colspan="6">Subwatershed</th></tr><tr><th>Mugu Lagoon<sup>1</sup></th><th>Calleguas Creek</th><th>Revolon Slough</th><th>Arroyo Las Posas</th><th>Arroyo Simi</th><th>Conejo Creek</th></tr><tr><td>Chlordane</td><td>25.0</td><td>— 17.0</td><td>— 48.0</td><td>— 3.3</td><td>— 3.3</td><td>— 3.3</td></tr><tr><td>4,4-DDD</td><td>69.0</td><td>— 66.0</td><td>— 400.0</td><td>— 290.0</td><td>— 140.0</td><td>— 140.0</td></tr><tr><td>4,4- DDE</td><td>300.0</td><td>— 470.0</td><td>— 1,600.0</td><td>— 950.0</td><td>— 170.0</td><td>— 170.0</td></tr><tr><td>4,4-DDT</td><td>39.0</td><td>— 110.0</td><td>— 690.0</td><td>— 670.0</td><td>— 25.0</td><td>— 25.0</td></tr><tr><td>Dieldrin</td><td>19.0</td><td>— 3.0</td><td>— 5.7</td><td>— 1.1</td><td>— 1.1</td><td>— 3.0</td></tr><tr><td>PCBs</td><td>180.0</td><td>— 3,800.0</td><td>— 7,600.0</td><td>— 25,700.0</td><td>— 25,700.0</td><td>— 25,700.0</td></tr><tr><td>Toxaphene</td><td>22900.0</td><td>— 260.0</td><td>— 790.0</td><td>— 230.0</td><td>— 230.0</td><td>— 230.0</td></tr></table> <p><sup>1</sup> The Mugu Lagoon subwatershed includes Duck Pond/Agricultural Drain/Mugu/Oxnard Drain #2.</p>	Constituent	Subwatershed						Mugu Lagoon <sup>1</sup>	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek	Chlordane	25.0	— 17.0	— 48.0	— 3.3	— 3.3	— 3.3	4,4-DDD	69.0	— 66.0	— 400.0	— 290.0	— 140.0	— 140.0	4,4- DDE	300.0	— 470.0	— 1,600.0	— 950.0	— 170.0	— 170.0	4,4-DDT	39.0	— 110.0	— 690.0	— 670.0	— 25.0	— 25.0	Dieldrin	19.0	— 3.0	— 5.7	— 1.1	— 1.1	— 3.0	PCBs	180.0	— 3,800.0	— 7,600.0	— 25,700.0	— 25,700.0	— 25,700.0	Toxaphene	22900.0	— 260.0	— 790.0	— 230.0	— 230.0	— 230.0
Constituent	Subwatershed																																																														
	Mugu Lagoon <sup>1</sup>	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek																																																									
Chlordane	25.0	— 17.0	— 48.0	— 3.3	— 3.3	— 3.3																																																									
4,4-DDD	69.0	— 66.0	— 400.0	— 290.0	— 140.0	— 140.0																																																									
4,4- DDE	300.0	— 470.0	— 1,600.0	— 950.0	— 170.0	— 170.0																																																									
4,4-DDT	39.0	— 110.0	— 690.0	— 670.0	— 25.0	— 25.0																																																									
Dieldrin	19.0	— 3.0	— 5.7	— 1.1	— 1.1	— 3.0																																																									
PCBs	180.0	— 3,800.0	— 7,600.0	— 25,700.0	— 25,700.0	— 25,700.0																																																									
Toxaphene	22900.0	— 260.0	— 790.0	— 230.0	— 230.0	— 230.0																																																									

TMDL Element	Calleguas Creek Watershed OC Pesticide, PCBs, and Siltation TMDL																																																														
	<p><b>b) Final Sediment LAs (ng/g)-<sup>1</sup></b></p> <table><tr><th rowspan="2">Constituent</th><th colspan="6">Subwatershed</th></tr><tr><th>Mugu Lagoon<sup>1</sup></th><th>Calleguas Creek</th><th>Revolon Slough</th><th>Arroyo Las Posas</th><th>Arroyo Simi</th><th>Conejo Creek</th></tr><tr><td>Chlordane</td><td>3.3</td><td>3.3</td><td>0.9</td><td>3.3</td><td>3.3</td><td>3.3</td></tr><tr><td>4,4-DDD</td><td>2.01<sup>2</sup></td><td>1.22<sup>2</sup></td><td></td><td>2.01<sup>2</sup></td><td>1.2<sup>2</sup></td><td>1.2<sup>2</sup>-2.0</td></tr><tr><td>4,4-DDE</td><td>2.24<sup>2</sup></td><td>1.4<sup>2</sup></td><td>1.4<sup>2</sup></td><td>1.4<sup>2</sup></td><td>1.4<sup>2</sup></td><td>1.4<sup>2</sup></td></tr><tr><td>4,4-DDT</td><td>0.3</td><td>0.3</td><td>0.3</td><td>0.3</td><td>0.3</td><td>0.3</td></tr><tr><td>Dieldrin</td><td>4.3</td><td>0.2</td><td>0.1</td><td>0.2</td><td>0.2</td><td>0.2</td></tr><tr><td>PCBs</td><td>180.0</td><td>120.0</td><td>130.0</td><td>120.0</td><td>120.0</td><td>120.0</td></tr><tr><td>Toxaphene</td><td>360.0</td><td>0.6</td><td>1.0</td><td>0.6</td><td>0.6</td><td>0.6</td></tr></table> <p><sup>1</sup> The Mugu Lagoon subwatershed includes Duck Pond/Agricultural Drain/Mugu/Oxnard Drain #2.</p> <p><del>Final allocations set according to percent reduction required for achievement of fish tissue and water column targets, unless otherwise noted</del></p> <p><del><sup>2</sup> Final allocation set equal to the sediment guideline value (TEL or ERL)</del></p> <p><b>2. Siltation LAs</b></p> <p><del>Agricultural</del><u>Agricultural</u> dischargers will receive an allocation of <del>2,704</del> <u>3,000</u> tons/<del>yr</del><u>yr</u>. Reduction in sediment yield to Mugu Lagoon. <u>The baseline from which the load reduction will be evaluated will be determined by a special study of this TMDL. The load allocation will apply after the baseline is established, as described in the Implementation Plan. This is equivalent to a 70 percent reduction in long term baseline deposition values, and includes a 30 percent margin of error in maintaining existing sedimentation conditions.</u></p> <p><u>Effective date – start measuring siltation loads to Mugu Lagoon</u></p> <p><u>Annually after ed – report siltation loads</u></p> <p><u>5 years after ed – special study to be submitted to establish baseline</u></p> <p><u>8 years after ed – evaluation of compliance – if not submit and implement BMP plan</u></p> <p><u>10 years after ed – compliance with allocation; responsible parties = navy, wpd, and ag; include language that if the ag waiver already does this the E.O. can coordinate the programs.</u></p>	Constituent	Subwatershed						Mugu Lagoon <sup>1</sup>	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek	Chlordane	3.3	3.3	0.9	3.3	3.3	3.3	4,4-DDD	2.01 <sup>2</sup>	1.22 <sup>2</sup>		2.01 <sup>2</sup>	1.2 <sup>2</sup>	1.2 <sup>2</sup> -2.0	4,4-DDE	2.24 <sup>2</sup>	1.4 <sup>2</sup>	1.4 <sup>2</sup>	1.4 <sup>2</sup>	1.4 <sup>2</sup>	1.4 <sup>2</sup>	4,4-DDT	0.3	0.3	0.3	0.3	0.3	0.3	Dieldrin	4.3	0.2	0.1	0.2	0.2	0.2	PCBs	180.0	120.0	130.0	120.0	120.0	120.0	Toxaphene	360.0	0.6	1.0	0.6	0.6	0.6
Constituent	Subwatershed																																																														
	Mugu Lagoon <sup>1</sup>	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek																																																									
Chlordane	3.3	3.3	0.9	3.3	3.3	3.3																																																									
4,4-DDD	2.01 <sup>2</sup>	1.22 <sup>2</sup>		2.01 <sup>2</sup>	1.2 <sup>2</sup>	1.2 <sup>2</sup> -2.0																																																									
4,4-DDE	2.24 <sup>2</sup>	1.4 <sup>2</sup>	1.4 <sup>2</sup>	1.4 <sup>2</sup>	1.4 <sup>2</sup>	1.4 <sup>2</sup>																																																									
4,4-DDT	0.3	0.3	0.3	0.3	0.3	0.3																																																									
Dieldrin	4.3	0.2	0.1	0.2	0.2	0.2																																																									
PCBs	180.0	120.0	130.0	120.0	120.0	120.0																																																									
Toxaphene	360.0	0.6	1.0	0.6	0.6	0.6																																																									
Margin of Safety	<p>This TMDL relies on an implicit margin of safety, by incorporating conservative assumptions throughout its development, including:</p> <ul style="list-style-type: none"><li>♣ Basing percent reductions on the historical data set of water and</li></ul>																																																														

T  
E  
N  
T  
A  
T  
I  
V  
E



TMDL Element	Calleguas Creek <u>Watershed</u> OC Pesticide, PCBs, and Siltation TMDL
	<p>fish tissue concentrations, which does not <u>reflect</u> <del>include</del> the effects of attenuation the over the past ten years.</p> <ul style="list-style-type: none"> <li>♣ <u>Determining the percent reduction in sediment, by basing it on the greater percent reduction of either water or fish tissue concentrations based on available data.</u></li> <li>♣ Reducing the allowable concentration for upstream subwatersheds, to ensure protection of those subwatersheds downstream from upstream inputs.</li> <li>♣ Choosing Threshold Effects Levels (TELs) and Effects Range Lows (ERLs) as numeric targets for sediment, which are the most protective applicable sediment guidelines.</li> <li>♣ <u>Selecting t</u>The more stringent of the allowable concentration (as calculated by percent reduction methodology) or the numeric target for sediment (TEL or ERL), <u>when</u>if available, <del>is selected</del> as the WLA and LA for all reaches with 303(d) listings for sediment.</li> </ul>
Future Growth	<p>Ventura County accounts for slightly more than 2% of the state's residents with a population of 753,197 (US Census Bureau, 2000). GIS analysis of the 2000 census data yields a population estimate of 334,000 for the CCW, which equals about 44% of the county population. According to the Southern California Association of Governments (SCAG), growth in Ventura County averaged about 51% per decade from 1900-2000; with growth exceeding 70% in the 1920s, 1950s, and 1960s. Significant population growth is expected to occur within and near present city limits until at least 2020. Since most of the listed OCs <u>and PCBs</u> in the CCW <del>are</del><u>are</u> banned, this growth is not expected to increase current loads. Urban application <u>offer</u> those OC pesticides which are still legal (dacthal and endosulfan) may increase, but overall use may decrease because urban expansion tends to reduce total acreage of agricultural land.</p> <p>Population growth may result in greater OC loading to POTW influent <u>from washing food products containing OC residues</u>. This loading may be proportional <u>to the increase in population</u>, if per capita domestic water use and pesticide load per household remain constant. Increased flow from POTWs should not result in impairment of the CCW as long as effluent concentration standards are met for each POTW.</p> <p>As urban development occurs, construction activities may have a range of effects <u>up</u>on OC loading to the CCW. Exposure of previously vegetated or deeply buried soil might lead to increased</p>

TMDL Element	Calleguas Creek <u>Watershed</u> OC Pesticide, PCBs, and Siltation TMDL
	<p>rates of <del>degr</del>transportation and volatilization. Conversely, urbanization of open space and/or agriculture areas <del>will bury</del> <u>potential sources of may cover</u> OC <u>pesticides</u> bound to sediments.</p> <p>Future growth <u>in the CCW</u> may result in increased <u>groundwater-OC</u> concentrations <u>of currently used OC pesticides in groundwater in the CCW</u>. This is a <u>potential</u> concern for dacthal, which is still used and has been found in groundwater (<u>although current levels of dacthal are significantly lower than all available targets</u>). The effects of future growth upon PCB loads are unknown, but not likely to prove significant, since atmospheric deposition and accidental spills <del>awere</del> the primary loading pathways. Any increase in OCs due to population growth may be offset by decreased inputs from banned OCs, as their presence attenuates due to fate and transport processes.</p>
<b>Critical Conditions</b>	<p>The linkage analysis found correlation between <del>OC</del> <u>concentrations concentrations of OC pesticides and PCBs</u> in water and total suspended solids (TSS), and a potential correlation between <del>OC-OC pesticides and PCBs</del> concentrations in water and seasonality (wet vs. dry season). A similar correlation between sediment loading <u>ing</u> and wet weather is also noted.</p> <p>OC <del>pesticides and PCB</del> pollutants are of potential concern in the Calleguas Creek <u>Watershed</u> due to possible long--term loading and food chain bioaccumulation effects. There is no evidence of short--term <del>potential</del> effects. However, pollutant loads and transport within the watershed may vary under different flow and runoff conditions. Therefore the TMDLs consider seasonal variations in loads and flows but are established in a manner which accounts for the longer time horizon in which ecological effects may occur.</p> <p><u>Wet weather events, which may occur at any time of the year, produce extensive sediment redistribution and transport downstream. This would be considered the critical condition for loading. However, the effects of organochlorine compounds are manifested over long time periods in response to bioaccumulation in the food chain. Therefore, short-term loading variations (within the time scale of wet and dry seasons each year) are not likely to cause significant variations in beneficial use effects. Therefore, although seasonal variations in loads and flows were considered, the TMDL was established in a manner which accounts for the longer time horizon in which ecological effects may occur</u></p>

TMDL Element	Calleguas Creek <u>Watershed</u> OC Pesticide, PCBs, and Siltation TMDL
	<p><del>Wet weather events, which may occur at any time of the year, produce extensive sediment redistribution and transport downstream. This would be considered the critical condition for loading. However, the effects of organochlorine compounds are manifested over long time periods in response to bioaccumulation in the food chain. Therefore, short term loading variations (within the time scale of wet and dry seasons each year) are not likely to cause significant variations in beneficial use effects.</del></p>
Implementation Plan	<p>The final WLAs will be included in NPDES permits in accordance with the compliance schedules provided in Table 7-17.2. <del>The Regional Board may revise Any revisions to these WLAs will be based on additional information developed through as described in the Special Studies and/or Monitoring of this TMDL. Section of the Technical Report.</del></p> <p><del>In accordance with current practice, a group concentration based WLA has been developed for MS4s. The grouped allocation will apply to all NPDES-regulated municipal stormwater discharges in the CCW. Stormwater WLAs will be incorporated into the NPDES permit as receiving water limits measured at the downstream points for base of each subwatershed and will be achieved through the implementation of BMPs as outlined in the implementation plan. Should If federal, state, or regional guidance or practice for implementing WLAs into permits is revised, the TMDL will be revised to incorporate such guidance. As compliance with the fish tissue and water targets are determined in stream there is the potential for compliance with the targets without attainment of WLAs. Additionally, reducing sediment discharge to the receiving waters could have downstream impacts, such as increasing streambed erosion. Based on evaluation of these impacts, WLAs may be reevaluated prior to the final WLA achievement dates. Any revisions to these WLAs will be based on the collection of additional information developed through special studies and/or monitoring conducted as part of this TMDL.</del></p> <p>WLAs established for the five major POTWs in this TMDL will be implemented through NPDES permit limits. The proposed permit limits will be applied as end-of-pipe concentration-based effluent limits for POTWs. Compliance will be determined through monitoring of final effluent discharge as defined in the NPDES permit. The implementation plan for POTWs focuses on implementation of source control activities. Consideration of annual averaging of compliance data will be evaluated at the time</p>

TMDL Element	Calleguas Creek <u>Watershed</u> OC Pesticide, PCBs, and Siltation TMDL
	<p>of permit renewal based on available information, Regional Board policies, <del>addressing objectives averaging in place at the time of permit renewal</del>, and US EPA approval.</p> <p><u>In accordance with current practice, a group concentration-based WLA has been developed for MS4s, including the Caltrans MS4. The grouped allocation will apply to all NPDES-regulated municipal stormwater discharges in the CCW. Other NPDES-regulated stormwater permittees will be assigned a concentration-based WLA consistent with the interim and final WLAs set forth above. Stormwater WLAs will be incorporated into the NPDES permit as receiving water limits measured at the downstream points of each subwatershed and are expected to will be achieved through the implementation of BMPs as outlined in the implementation plan. The Regional Board will need to ensure that permit conditions are consistent with the assumptions of the WLAs. If BMPs are to be used, the Regional Board will need to detail its findings and conclusions supporting the use of BMPs in the NPDES permit fact sheets. Should federal, state, or regional guidance or practice for implementing WLAs into permits be revised, the Regional Board may revise/evaluate the TMDL to incorporate such guidance.</u></p> <p>LAs will be implemented through the State's Nonpoint Source Pollution Control Program (NPSPCP). The LARWQCB is developing a Conditional Waiver for Irrigated Lands, which includes monitoring at sites subject to approval by the Executive Officer of the Regional Board. Should adoption of the Conditional Waiver be delayed, monitoring will be required as part of this TMDL.</p> <p>Studies are currently being conducted to assess the effectiveness of BMPs for reduction of pollutants from agricultural operations. Results will be used to develop Agricultural Water Quality Management Plans, including the implementation of agricultural BMPs. Additionally, an agricultural education program will be developed to inform growers of the recommended BMPs and the Management Plan.</p> <p>As shown in Table 7-17.2, <del>the following</del> implementation actions will be taken by agricultural <u>dischargers</u> located in the CCW. <u>÷</u></p> <ul style="list-style-type: none"> <li><del>• Develop an Agricultural Water Quality Management Plan;</del></li> <li><del>• Implement special studies to address issues, including: siltation, protection of habitat, alternative numeric targets, sediment</del></li> </ul>

TMDL Element	Calleguas Creek <u>Watershed</u> OC Pesticide, PCBs, and Siltation TMDL
	<p><del>transport rate, sediment concentrations by land use type, identification of high concentration areas, effect of BMPs upon sedimentation and siltation, concentration of OCs in Simi Valley groundwater discharges, and examination of food webs, bioaccumulation, and wildlife effects.</del></p> <ul style="list-style-type: none"> <li><del>• Determine the most appropriate BMPs given crop type, pesticide, site specific conditions, as well as the critical condition defined in the development of the LAs; and,</del></li> <li><del>• Implement appropriate BMPs and evaluate their effectiveness on in-stream water and sediment quality through monitoring.</del></li> <li><del>• Continue to implement BMPs until water quality standards are met.</del></li> </ul> <p><u>The implementation of agricultural BMPs will be based on a comprehensive approach to address the multitude of pollutant loadss discharged from agricultural operations. Additionally, as compliance with the fish tissue and water targets are determined in-stream there is the potential for compliance with the targets without attainment of LAs. Finally, reducing sediment discharge to the receiving waters could have downstream impacts, such as increasing streambed erosion. BMP implementation will be evaluated in this context and LAs may be reevaluated prior to the final LA achievement dates. The RegionalRegional Board may Any revise ions to these LAs will be based on the collection of additional information developed through special studies and/or monitoring conducted as part of this TMDL.</u></p> <p><u>A number of provisions in this TMDL might provide information that could result in revisions to the TMDL. Additionally, the development of sediment quality criteria and other water quality criteria revisions may require the reevaluation of this TMDL. Finally, the use of OC pesticides in other countries which may be present in imported food products, compounded with the persistence of OC pesticides and PCBs in the environment, indicate that efforts to control sources and transport of OCs to receiving waters may not result in attainment of targets and allocations due to activities that are outside the control of local agencies and agriculture. For these reasons, the Implementation Plan includes this provision for reevaluating the TMDL to consider revised water quality objectives and the results of implementation studies, if appropriate.</u></p> <p><u>The siltation portion of the TMDL includes wasteload and load</u></p>

TMDL Element	Calleguas Creek <u>Watershed</u> OC Pesticide, PCBs, and Siltation TMDL
	<p><u>allocations set as an annual mass reduction from a baseline value of sediment and silt deposited in Mugu Lagoon. The baseline value of sediment and silt conveyed to Mugu Lagoon is to be determined by a TMDL Special Study and established by the Regional Board through an amendment to the TMDL. The Special Study is eight years in duration to ensure that the full range of current conditions that affect loading of sediment and siltation to Mugu Lagoon are considered. If appropriate, the Special Study may also result in a revision to the mass load reduction. The Special Study will be overseen by a Science Advisory Panel consisting of local, regional, and/or national experts in estuarine habitat biology, hydrology, and engineering. At the conclusion of the special study, the Regional Board will reconsider the TMDL to establish sustainable wasteload and load allocations recommended by the Special Study to support aquatic life and wetland habitat beneficial uses.</u></p> <p><u>In implementing this TMDL, staff recognize that dischargers may be implementing management measures and management practices to reduce sediment and Siltation loads through permit and waiver programs during the special studies. Further, since the effective date of the Consent Decree, reaches of Calleguas Creek have been listed due to sediment, and another TMDL may be initiated during the Special Study of this TMDL. Staff's intent is to coordinate the requirements of this TMDL with other programs that reduce sedimentation and siltation. <del>In recommending a numeric baseline and mass load reductions,</del> The Special Study can consider sediment and silt load reductions through existing permits and the forthcoming conditional waiver for irrigated lands. Load and wasteload allocations become effective after the Regional Board actions based on the Special Study, nine years after the effective date of the TMDL.</u></p>

T  
E  
N  
T  
A  
T  
I  
V  
E

Table 7-17.2 Implementation Schedule

Item	Implementation Action <sup>1</sup>	Responsible Party	Tentative Completion Date	
1	<del>Interim organochlorine pesticide and polychlorinated biphenyls PCB OC wasteload allocations apply Effective date of interim OC waste load allocations. <sup>2</sup></del>	<del>POTW Permittees, MS4 NPDES Permittees</del>	<del>Effective date of the amendment</del>	
2	<del>Interim organochlorine pesticide and polychlorinated biphenyls PCB Effective date of interim OC load load allocations apply. <sup>2</sup></del>	<del>Agricultural Dischargers <sup>+</sup></del>	<del>Effective date of the amendment</del>	
3	<del>Finalize and submit workplan for organochlorine pesticide, polychlorinated biphenyls, and siltation TMDL monitoring, or finalize and submit a workplan for an Integrated Calleguas Creek Watershed organochlorine pesticide, polychlorinated biphenyls, and siltation OC Monitoring Program for approval by the Executive Officer. The m Monitoring workplan will include, but not be limited to, appropriate water, biota, sediment and siltation loading and conformational monitoring to verify attainment of compliance with targets and protection of beneficial uses. Effective date of siltation load allocation</del>	<del>POTW Permittees, MS4 Permittees, and Agricultural Dischargers, US Navy Agricultural dischargers, US Navy, MS4 permittees</del>	<del>6 months after effective date of the amendment 9 years after effective date</del>	
43	<del>Initiate Calleguas Creek Watershed organochlorine pesticide, polychlorinated biphenyls, and siltation OC Monitoring Program developed under the Task 3 workplan and approved by the Executive Officer. Finalize and submit workplan for integrated Calleguas Creek Watershed OC Monitoring Program for approval by the Executive Officer. Monitoring workplan will include, but not be limited to, appropriate water, sediment, biota and conformational monitoring to verify compliance with targets and protection of beneficial uses.</del>	<del>POTW Permittees, MS4 Permittees, and Agricultural Dischargers, US Navy POTW Permittees, MS4 Permittees and Agricultural Dischargers <sup>2</sup></del>	<del>6 months after Executive Officer approval of Monitoring Program (Task 3) workplan 1 year after effective date of the amendment 6 months after effective date</del>	
54	<del>Submit a workplan for approval by the Executive Officer to identify urban, industrial commercial and domestic sources of organochlorine pesticides and polychlorinated biphenyls, including sources outside the control of local agencies, and reasonable control methods and to implement a collection and disposal program for organochlorine OC pesticides and polychlorinated biphenyls PCBs for approval by Executive Officer. Initiate Calleguas Creek Watershed OC Monitoring Program developed under Task 3 and approved by Executive Officer.</del>	<del>POTW Permittees, MS4 Permittees, US Navy POTW Permittees, MS4 Permittees and Agricultural Dischargers <sup>2</sup></del>	<del>1 year after effective date of the amendment, 1 year after effective date</del>	
6	<del>Submit a workplan for approval by the Executive Officer to identify agricultural sources and methods to implement a collection and disposal program for organochlorine pesticides and polychlorinated biphenyls. Based on results of the Task 5 workplan approved by Executive Officer, implement a collection and disposal program for organochlorine pesticides and polychlorinated biphenyls.</del>	<del>Agricultural Dischargers POTW Permittees, MS4 Permittees, US Navy</del>	<del>1 year after effective date of the amendment, 5 years after effective of the amendment.</del>	
75	<del>Special Study #1 – Submit a workplan and convene a Science Advisory Panel to quantify sedimentation in the Calleguas Creek watershed and sediment transport to Mugu Lagoon. Evaluate management methods to control siltation and contaminated sediment transport to Calleguas Creek, identify appropriate BMPs to reduce sediment loadings,</del>	<del>POTW Permittees, MS4 Permittees, Agricultural Dischargers, and US Navy Agricultural Dischargers POTW Permittees, MS4</del>	<del>1 year after effective date of the amendment, 1 year after effective date.</del>	

T  
E  
N  
T  
A  
T  
I  
V  
E



Item	Implementation Action <sup>1</sup>	Responsible Party	Tentative Completion Date	
	<u>evaluate numeric targets and wasteload and load allocations for siltation/sedimentation to support habitat related beneficial uses in Mugu Lagoon, evaluate the effect of sediment on habitat preservation in Mugu Lagoon, and evaluate appropriate habitat baseline, effectiveness of sediment and siltation load allocations on a subwatershed basis, and methods to restore habitat for approval by the Executive Officer. Additionally, this special study will evaluate the concentration of organochlorine pesticides and polychlorinated biphenyls in sediments from various sources/land use types.</u> <sup>2</sup> <u>Submit a workplan for approval by the Executive Officer to identify agricultural sources, including sources outside the control of local agencies, and reasonable control methods and to implement a collection and disposal program for organochlorine OC pesticides and polychlorinated biphenyls PCBs for approval by Executive Officer.</u>	Permittees		
8	<u>Special study #2 – Submit a workplan for Executive Officer approval to identify areas of high organochlorine pesticide and polychlorinated biphenyls concentrations. The workplan shall evaluate the effects of flood control practices on organochlorine pesticides, polychlorinated biphenyls, and sediment loadings to Calleguas Creek waterbodies. Such practices include but are not limited to management of agricultural runoff, sediment reduction practices and structures, streambank stabilization, and other projects related to stormwater conveyance and flood control improvements in the Calleguas Creek watershed.</u> <sup>2</sup> <u>Based on results of Task 7 workplan approved by Executive Officer implement a collection and disposal program for organochlorine pesticides and polychlorinated biphenyls.</u>	Agricultural Dischargers, MS4 Permittees, US Navy Agricultural Dischargers	2 years after effective date of the amendment, 5 years after effective of the amendment.	
97	<u>Special Study #2 – Implement removal actions and other management measures based on the approved Special Study #2 workplan.</u> <del>ment of consideration of the forthcoming junction with the (if the Conditional Waiver if the Conditional Waiver for Irrigated Lands r.) the ment of Special Study #1</del> <u>— Submit a workplan to quantify sedimentation in the CCW, including sediment by source/ land use type, and sediment transport to Mugu Lagoon; evaluate management methods to control siltation and contaminated sediment transport to CC, identify appropriate BMPs to reduce sediment loadings, and evaluate the effect of sediment on habitat preservation in Mugu Lagoon for approval by the Executive Officer. Additionally, this special study will evaluate the concentration of OC pesticides and PCBs in sediments from various sources/land use types.</u> <sup>3</sup>	Agricultural Discharger, MS4 Permittees, US Navy POTW Permittees, MS4 Permittees and Agricultural Dischargers <sup>3</sup> Naval Base, Point Mugu	3 years after Executive Officer approval of Special Study #2 workplan. Within 3 years of effective date.	
108	<u>Develop an Agricultural Water Quality Management Plan in consideration of the forthcoming Conditional Waiver for Irrigated Lands, or, if the Conditional Waiver for Irrigated Lands is not adopted in a timely manner, develop an Agricultural Water Quality Management Plan as part of the Calleguas Creek WMP. Implement an educational program</u>	Agricultural Dischargers; US Navy POTW Permittees, MS4 Permittees and Agricultural Dischargers <sup>2</sup> Naval Base, Point Mugu	3 years after effective date of the amendment, 25 Within 3 years of effective date	

T  
E  
N  
T  
A  
T  
I  
V  
E



Item	Implementation Action <sup>1</sup>	Responsible Party	Tentative Completion Date	
	<del>on BMPs identified in the Agricultural Water Quality Management Plan. 11 Submit a workplan for Executive Officer approval to 11a. Horganochlorine pesticide and polychlorinated biphenyls OC-Ce. The workplan shall arease and Ee flood control w Watershed p Protection and IL and u Use activities, and commercial p Porganochlorine pesticides, polychlorinated biphenyls, and sediment loadings to Calleguas Creek waterbodies. Water Quality of agricultural runoff, of Identify and Implement implement appropriate BMPs and other methods to reduce sediment and contaminated sediment loading to Calleguas Creek and Mugu Lagoon in accordance with Task 7.</del>			
11	<del>Based on results of the Task 5 workplan approved by Executive Officer, implement a collection and disposal program for organochlorine pesticides and polychlorinated biphenyls. Special Study #1— Implement removal actions and other management measures based on the approved Special Study #1 workplan.</del>	<del>POTW Permittees, MS4 Permittees, US Navy Agricultural Dischargers, MS4 Permittees, US Navy</del>	<del>5 years after effective of the amendment. 3 years after Executive Officer approval of Special Study #1 workplan.</del>	
12	<del>Based on results of the Task 6 workplan approved by Executive Officer implement a collection and disposal program for organochlorine pesticides and polychlorinated biphenyls. Re-evaluation of POTW Interim wasteload allocations for organochlorine pesticides and polychlorinated biphenyls based on State Implementation Plan procedures.</del>	<del>Agricultural Dischargers Regional Board</del>	<del>5 years after effective of the amendment. 5 years, 10 years and 15 years after the effective date of the amendment.</del>	
13	<del>Re-evaluation of POTW Interim wasteload allocations for organochlorine pesticides and polychlorinated biphenyls based on State Implementation Plan procedures. Special Study #2— Submit a workplan and convene a Science Advisory Panel to quantify sedimentation in the Calleguas Creek watershed and sediment transport to Mugu Lagoon. Evaluate management methods to control siltation and contaminated sediment transport to Calleguas Creek, identify appropriate BMPs to reduce sediment loadings, evaluate numeric targets and wasteload and load allocations for siltation/sedimentation to support habitat related beneficial uses in Mugu Lagoon, evaluate the effect of sediment on habitat preservation in Mugu Lagoon, and evaluate appropriate habitat baseline, effectiveness of sediment and siltation load allocations on a subwatershed basis, methods to restore habitat, and effectiveness of load allocated on a subwatershed basis for approval by the Executive Officer. Additionally, this special study will evaluate the concentration of OC pesticides and PCBs in sediments from various sources/land use types.<sup>-2</sup></del>	<del>Regional Board POTW Permittees, MS4 Permittees, Agricultural Dischargers, and US Navy</del>	<del>5 years, 10 years and 15 years after the effective date of the amendment. 1 year after effective date of the amendment.</del>	
140 110	<del>Special Study #12 – Submit results of Special Study #12 to contain, including recommendations for refining the siltation load and wasteload allocations. If high concentration areas and land use practices resulting in excessive OC pesticide and PCB loads are identified, in accordance with approved Special Study #1 (Task 9), implement additional erosion control measures and removal actions in those areas. Consider revision of the TMDL</del>	<del>POTW Permittees, MS4 Permittees, Agricultural Dischargers, and US Navy MS4 Permittees Regional Board</del>	<del>8 years after effective date of the amendment 7 years after effective date of the amendment. Within 9 years of effective date.</del>	

Item	Implementation Action <sup>1</sup>	Responsible Party	Tentative Completion Date	
	<del>numeric target for siltation/sedimentation to support habitat-related beneficial uses for habitat based on Task 9.</del>			
<del>15</del>	<del>Re-evaluation of siltation and sediment load and wasteload allocations based on Special Study #12.</del>	<del>Regional Board</del>	<del>9 years after effective date of the amendment</del>	
<del>163</del> <del>413</del>	<del>Effective date of siltation load allocation and wasteload allocation. Development of an Agricultural Water Quality Management Plan in conjunction with the Conditional Waiver for Irrigated Lands, or (if the Conditional Waiver is not adopted in a timely manner) the development of an Agricultural Water Quality Management Plan as part of the Calleguas Creek WMP. Implement educational program on BMPs identified in the Agricultural Water Quality Management Plan.</del>	<del>Agricultural dischargers, US Navy, MS4 permittees, Agricultural Dischargers<sup>2</sup></del>	<del>9 years after effective date of the amendment. Within 3 years of effective date.</del>	
<del>176</del> <del>744</del>	<del>Special Study #345 – Evaluation of natural attenuation rates and; evaluation of compare to evaluate methods measures to accelerate enhance organochlorine pesticide and polychlorinated biphenyl-OC Pest and PCB removal from attenuation and methods to attain wasteload and load allocations in the Calleguas Creek Watershed CCW and attainability of wasteload and load allocations. - WLAs and LAs.<sup>-23</sup></del>	<del>POTW Permittees<sup>3</sup>, Agricultural Dischargers, MS4 Permittees, and US Naval Base</del>	<del>12 years after effective date of the amendment.</del>	
<del>187</del> <del>815</del>	<del>Special Study #456 (optional) – ExamExamine ination of the food web and bioconcentration relationships throughout the watershed to evaluate assumptions contained in the Linkage Analysis and ensure that protection of beneficial uses wildlife is achieved.<sup>23</sup></del>	<del>Interested Parties</del>	<del>12 years after effective date of the amendment.</del>	
<del>198</del> <del>946</del>	<del>Regional Board consideration ofBased on the results of Special Studies Nos. 5 and 6Implementation Items 1-18785, if sediment guidelines are promulgated or water quality criteria are revised, and/or if fish tissue and water column targets are achieved without attainment of WLAs or LAAs, the to reviseRegional Board will consider revisions to the TMDL, targets, allocations, and schedule for expiration of Interim Wasteload and Interim Load Allocations.</del>	<del>Regional Board</del>	<del>13 years after effective date of the amendment.</del>	
<del>201</del> <del>920</del> <del>17</del>	<del>Achievement of Final WLAs and LAs</del>	<del>Agricultural Dischargers<sup>3</sup>, POTW Permittees, and MS4 Permittees</del>	<del>2025<sup>4</sup>20 years after effective date of the amendment.<sup>25-3</sup></del>	

<sup>1</sup> The Regional Board regulatory programs addressing all discharges in effect at the time this implementation task is due may contain requirements substantially similar to the requirements of these implementation tasks. If such requirements are in place in another regulatory program including other TMDLs, the Executive Officer may revise or eliminate this implementation task to coordinate this TMDL implementation plan with other regulatory programs.

<sup>2</sup> Interim WLAs and Interim LAs are effective immediately upon TMDL Adoption. WLAs will be placed in POTW NPDES permits as effluent limits. WLAs will be placed in stormwater NPDES permits as in-stream limits. LAs will be implemented using applicable regulatory mechanisms.

<sup>23</sup> Special All special studies included in the Implementation Plan are based on the TMDL must consider the specifics contained in the Technical Documents.

<sup>4</sup> Date of achievement of WLAs and LAs based on the estimated timeframe for educational programs, special studies, implementation of appropriate BMPs, and predicted trends of natural attenuation. The conditional waiver will set the timeframes for the BMP management plans.